Nostradamus

Open Call #1
INFO WEBINAR #2

Applicant Webinar Series:
Strategic Agendas for Administrative & Technical Readiness

12 November 2026 | 10h00 – 11h40 CET

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Thank you for joining today.

The webinar will start in a few minutes.

Please make sure that you have your microphone and video turned off.

The webinar will be recorded and publicly disseminated.

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Welcome

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- **Before we start:**

- Rename yourself to first, last name and entity you represent. It will be easier to identify you during the Q&A.
- There will be a specific slot dedicated to Q&A. If you have a question, please use the “Raise Hand” tool. If we miss your signal, you can indicate you have a question in the chat box.
- The moderator will go through the raised hands and asks participants to turn on their microphones to ask their questions. Please wait for your turn.
- Make sure that you have your microphone and video turned off during the presentation.
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NOSTRADAMUS Open Call #1 Digital Applications for Farm Decision-Making

Funding open-source digital solutions for sustainable agriculture

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Webinar 1: Agenda

Timing	Core Topic & Scope	Session Lead
10:00 – 10:05	Welcome and Nostradamus project context	F6S (Open Call Manager)
10:05 – 10:10	Objectives of Open Call #1 technical solutions (cereal-based systems & food security).	ECoE (Project Coordinator)
10:10 – 10:25	Understanding the 5 Open Call Topics & Core Modules: • Nostradamus OC #1 Topics • Nostradamus Core Modules	F6S (Open Call Manager) Module Leads (BIOS, ITC, DLR, ECoE)
10:25 – 10:45	The Nostradamus Technology Stack & Interoperability	UNIGE, Terradue & AUTH
10:45 – 11:05	Demo Sites Overview	Demo Site Leads (DLG, BIOS, Agroscope/WBF, ITC, ECoE)
11:05 – 11:15	Demo Sites Affiliation, Field Testing, Other Mandatory Outputs	F6S (Open Call Manager)
11:55 – 11:40	Interactive Q&A Session	Joint Panel

Digital Applications for Farm Decision-Making

Open Call #1 at a glance

NOSTRADAMUS OC #1 will support third parties to develop, test and validate open-source digital applications for farm decision-making.

€250,000
Total Allocated Budget
Lump Sum Grant
100% funding rate per sub-project

5 Projects
Max €50,000 per Project
One award per thematic domain

12 Months
4 Sprints: 10/25/40/25%

02 Dec 2026
Deadline: 17:00 CET

Mandatory Thematic Topics (T1 - T5)

T1: Sustainable Crop Production: Cereal systems optimization under climate stress.

T2: Soil & Nutrient Management: Soil fertility indicators & precision fertilization.

T3: Water & Drought Resilience: Early Warning Systems & IoT soil monitoring.

T4: Predictive Pest Management: AI disease hotspot detection & pesticide reduction.

T5: Open Cross-Domain Topic: Multi-functional app combining at least 2 topics.

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TRL 7
Operational Target
Progression from TRL 4 baseline
(Technology validated in lab)

Live Submission Channels

Official Web page for OC #1:
nostradamus-project.eu/open-call-1/

All 6 core annexes are published and available for open download.

F6S Submission application form:
f6s.com/nostradamus-open-call-1/apply

Contact Email:
opencall@nostradamus-project.eu

Call Live (29.09.2026)

Two Focused Webinars for Prospective Applicants

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Info Webinar #1

Administrative & Eligibility (30 October 2026) COMPLETED

Submission mechanics and compliance criteria.

Focus on F6S portal navigation, templates, and budgeting rules.

Missed the Webinar?

Watch the Recording and Download the Slides!

- **Webinar recording**
- **Presentation slides**

Info Webinar #2

Technical & Pilot Integration (12 November 2026)

Architecture specifications and pilot site assets.

Focus on Data Cubes, IoT Observatory, and AGE engines.

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Objectives of Open Call #1 Technical Solutions

F6S, Open Call Manager



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What solutions are we looking for?

Digital applications that turn agricultural data into better farm decisions

- Applications should support sustainable and efficient agricultural production, with a **specific focus** on cereal-based systems and food security.
- Solutions should apply **data-based approaches** to help farmers optimise inputs such as water, fertiliser and pesticides.
- The objective is to improve productivity and resilience while supporting a better energy and resource balance in agricultural production.
- Applications may use edge, cloud or mixed architectures and will be integrated with the NOSTRADAMUS technology offer.

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Understanding the 5 Open Call Topics & Core Modules



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NOSTRADAMUS Consortium

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NOSTRADAMUS OC #1 TOPICS:

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Topic 1 (T1)	Topic 2 (T2)	Topic 3 (T3)	Topic 4 (T4)	Topic 5 (T5)
Sustainable crop production and optimisation of cereal-based systems under changing climate and soil conditions.	**Nutrient and soil health management, integrating soil fertility indicators, organic matter dynamics, and precision fertilisation models**	**Water resource efficiency and drought resilience, using the Early Warning System outputs and IoT-based soil moisture monitoring.**	**Smart and predictive pest and disease management to support the EU objective of reducing pesticide dependency and enhancing sustainability.**	**Open Cross-Domain Topic** Open topic: Integrated, cross-domain decision-support applications combining multiple topics (an open proposal from the applicants for an application that combines at least 2 of the previous topics T1-T4)
↕	↕	↕	↕	
Module 2 **Crop suitability and agricultural yield estimation**	**Module 3** **Soil fertility and crop nutritional management**	**Module 1** **Early warning system for drought and vegetation stress monitoring**	**Module 4** **Sustainable and efficient pest management**	Any 2 of the listed Modules corresponding to the chosen topics

NOSTRADAMUS MODULES

NOSTRADAMUS

M1

Early warning system for drought and vegetation stress monitoring

DLR

M2

Crop suitability and agricultural yield estimation

BIOSENSE

M3

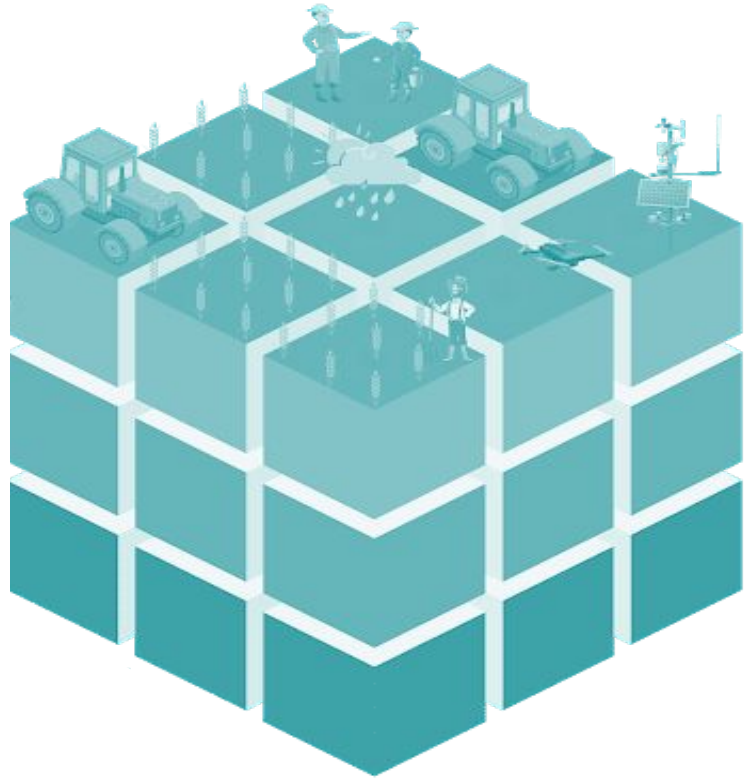
Soil fertility and crop nutritional management

ITC

M4

Suitable and Efficient Pest Management

ECoE



DLR

M1: Early warning system for drought and vegetation stress monitoring

Presenter Dr. Christina Eisfelder
Affiliation: German Aerospace Center (DLR), Earth Observation Center (EOC)

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M1

Module 1 – Input Data and Study Sites

Input datasets:

- Vegetation indicator (NDVI)
- Surface Soil Moisture (SSM)
- Land Surface Temperature (LST)
- Precipitation
- Meteorological forecasts

Type of Data	Source	About
Sentinel-2 images	ESA	Multispectral, every 5 days, up to 10 m, 2017-actual
Surface Soil Moisture	CGLS	Sentinel-1 product, daily, 1 km, 2014-actual
Land Surface Temperature	ESA, VITO	Sentinel-3 product, every 10 days, 1 km, 2020-actual
Precipitation data	CHC/UCSB	CHIRPS precipitation , every 5 days, ~5 km, 1981-actual
Meteorological forecasts	ECMWF IFS	Total Precipitation and Maximum Temperature, every 3 or 6 hours, 9 km, 10-day forecast

Study sites:



● Location of Nostradamus Demo Sites covered by Module 1

DLR

M1: Early warning system for drought and vegetation stress monitoring

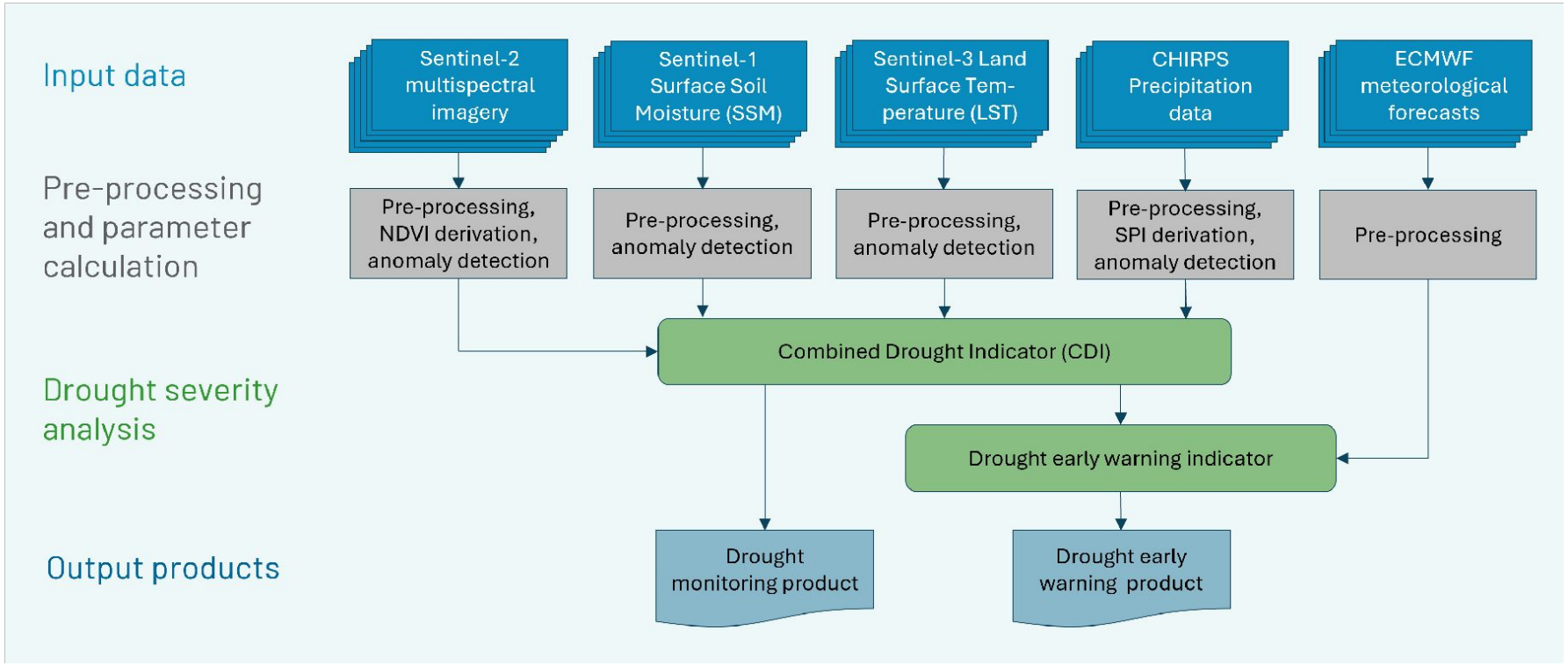
Presenter Dr. Christina Eisfelder
Affiliation: German Aerospace Center (DLR), Earth Observation Center (EOC)

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M1

Module 1 – Data Processing

→ Data **processing steps** and flowchart for Module 1



DLR

M1: Early warning system for drought and vegetation stress monitoring

Presenter Dr. Christina Eisfelder
Affiliation: German Aerospace Center (DLR), Earth Observation Center (EOC)

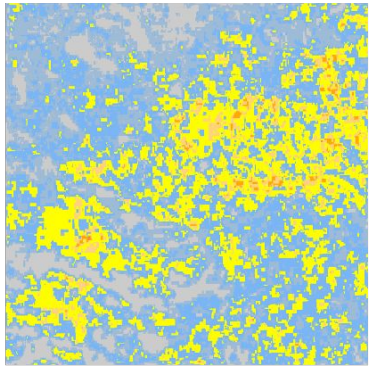
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M1

Module 1 – Output Products

→ Module 1 provides **drought monitoring** and **early warning datasets**

- distinguishing different drought severity levels
- with 10 m spatial resolution (using Sentinel-2 vegetation index as the spatial backbone, other parameters integrated at coarser resolution)
- Outputs provided as georeferenced raster datasets



Model prototype result

20 Aug 2026

Drought severity level

No Mild Severe

Study area shown in figure



M2: Crop suitability and agricultural yield estimation

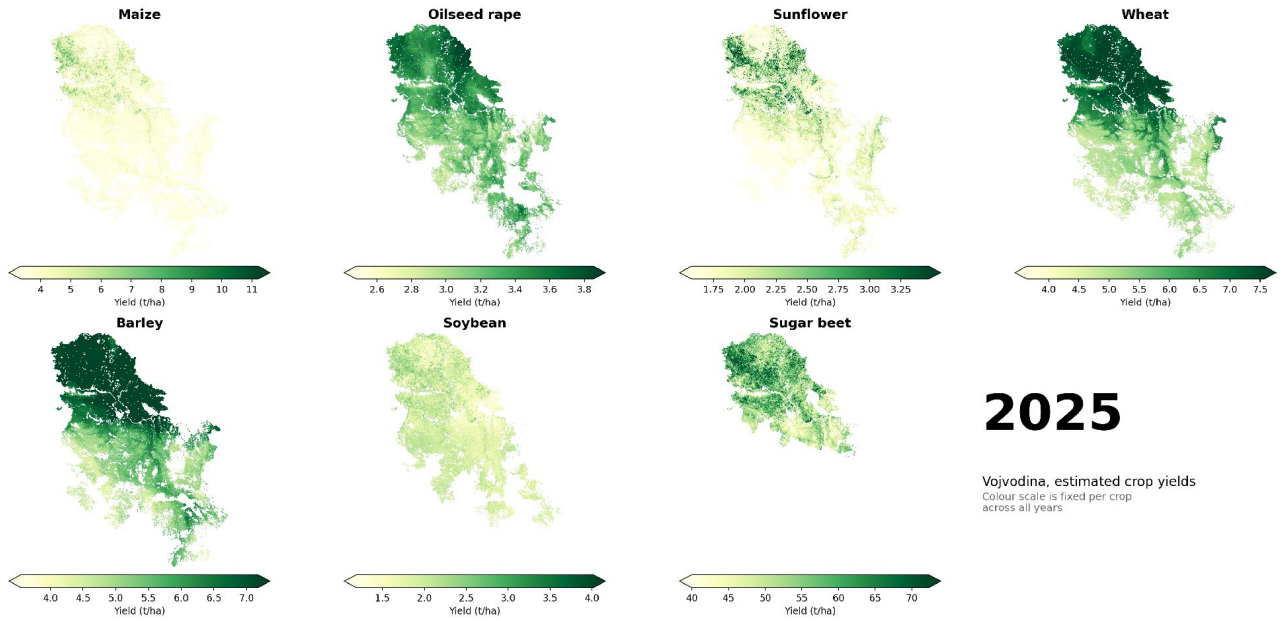
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M2

Results: Yield maps

Estimated yield (t/ha) per pixel: 7 crops, 2005–2025

- Machine learning models for each crop trained on field-level yield records from farmers and companies (XGBoost showed the best performance)
- **Inputs:** satellite vegetation indices (Sentinel-2), climate (ERA5), soil properties and classification (SoilGrids), elevation and field data
- Applied year by year: one map per crop and year

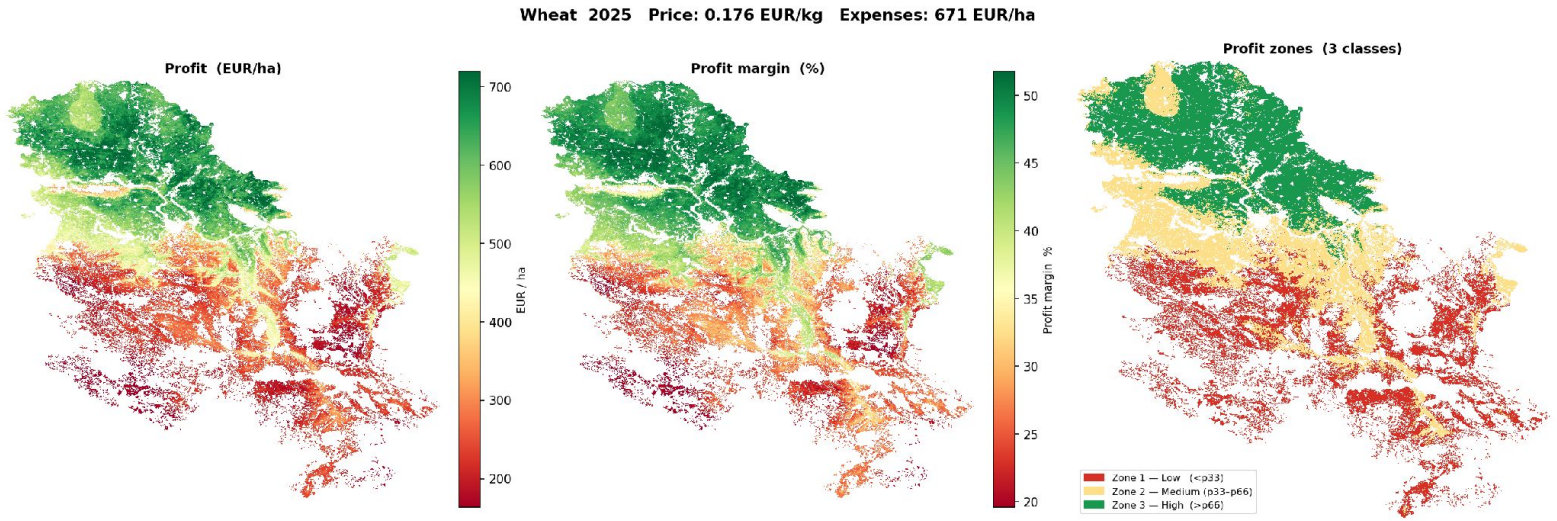


Example of 2025 yield maps for the territory of Serbia

Task 4.2
Results: Profit maps

→ Profit per pixel, crop and year

- Revenue = yield x producer price
- Profit (EUR/ha) = revenue – total expenses per hectare
- Profit margin (%) = profit / revenue
- Prices: Statistical books, STIPS, Green book, FAOSTAT

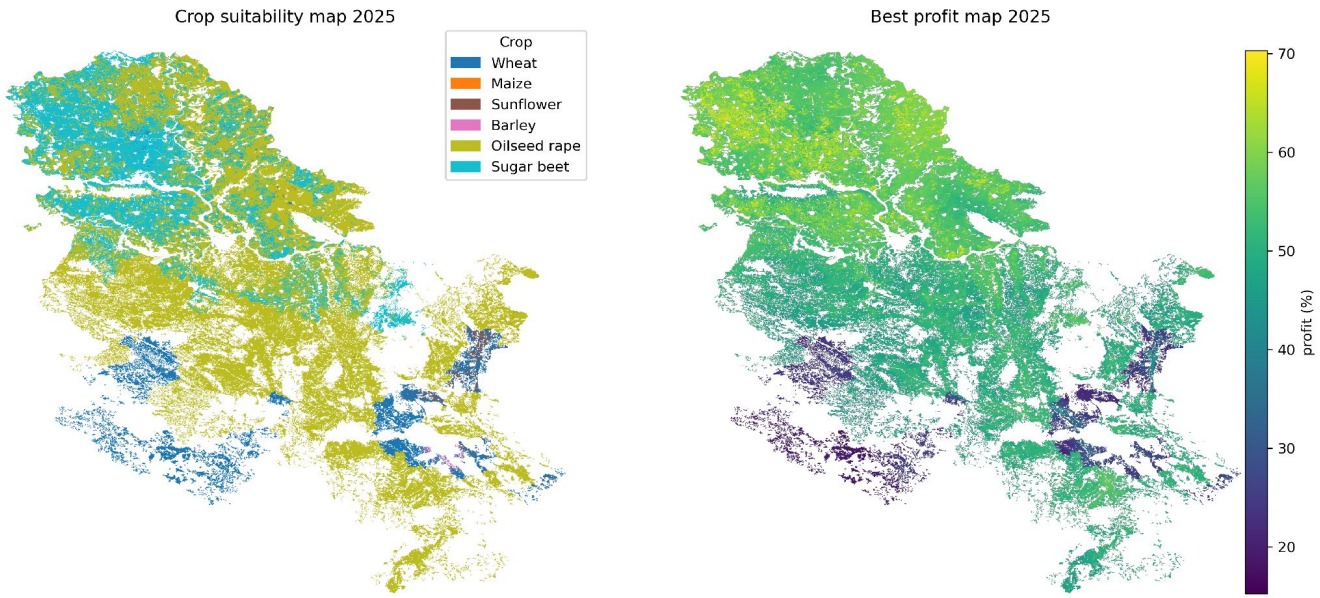


Profit maps of wheat for 2025

Task 4.2
Results: Crop suitability map

→ Best profit crop for each pixel and year

- **Crop suitability** = the crop that is expected to be most profitable to grow in a specific field in a specific year, based on satellite-predicted yield and history profit map
- **Data used:** the yearly profit maps 2005-2025 of the 7 crops
- **Process:** keep the highest profit crop and to each pixel assign a code to match the code on the classification map
- **Meaning:** the most achievable economic outcome per pixel



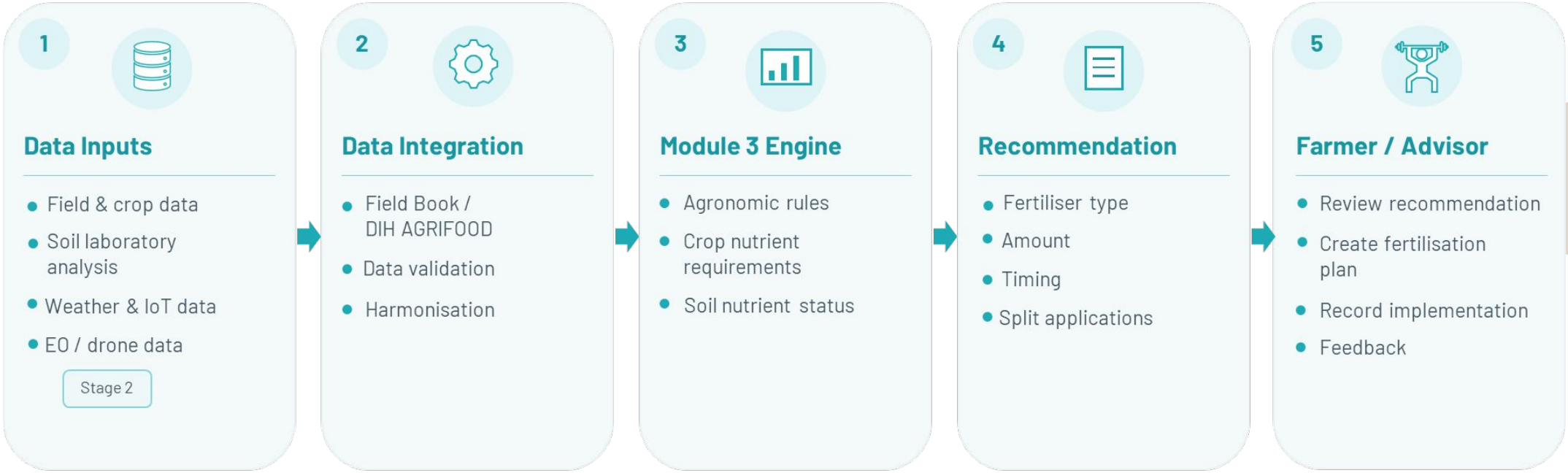
Crop suitability and profit map for 2025

ITC

M3: Soil fertility and crop nutritional management

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- Module 3 provides the agronomic foundation for soil fertility and crop nutritional management.
- It combines available **field, soil and environmental information** to support practical, data-driven fertilisation decisions.



M3

ECoE

M4: Suitable and Efficient Pest Management

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Early Warning System

Data Fusion: Sentinel-2, ERA5, SoilGrids, IoT sensors

ML Phenology: Zadoks cereal stage estimation

Risk Maps: Daily 10 m georeferenced alerts

Demo & Replication

Primary Pilot: ARI Acheleia station, Paphos, Cyprus

Target Crops: Wheat and barley field plots

Replication Site: DLG Bernburg, Germany

Third-Party Access

API Outputs: Phenology series, Zadoks, risk maps

Interoperability: Data Cubes, EO, IoT Observatory

IP Protection: Risk models remain ECoE proprietary

The module allows farmers to identify field-level disease hotspots, anticipate outbreak risk, and target pesticide use only where and when it is needed, potentially reducing both crop losses and chemical input.

The module is primarily developed and validated at the Cyprus demonstration site, on wheat and barley plots at the Agricultural Research Institute's Acheleia experimental station (Acheleia area, Morokampos site, Paphos).

Through the Nostradamus platform and APIs, Third Parties can access the module's crop-phenology time-series, Zadoks growth-stage estimates, and disease-risk/early-warning maps to develop digital applications for precision pest management, targeted spraying, advisory tools, and climate-adapted crop protection.

M4

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The Nostradamus Technology Stack & Interoperability

Technical Leads



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The Nostradamus Technology Stack & Interoperability

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AUTH

Hybrid Edge/Cloud/Mixed architecture

UNIGE

Accessing Data Cubes & Earth Observation (EO) Pipelines

TERRADUE

The EO Data Hub for application developers

AUTH

Connecting with the IoT Observatory

AUTH

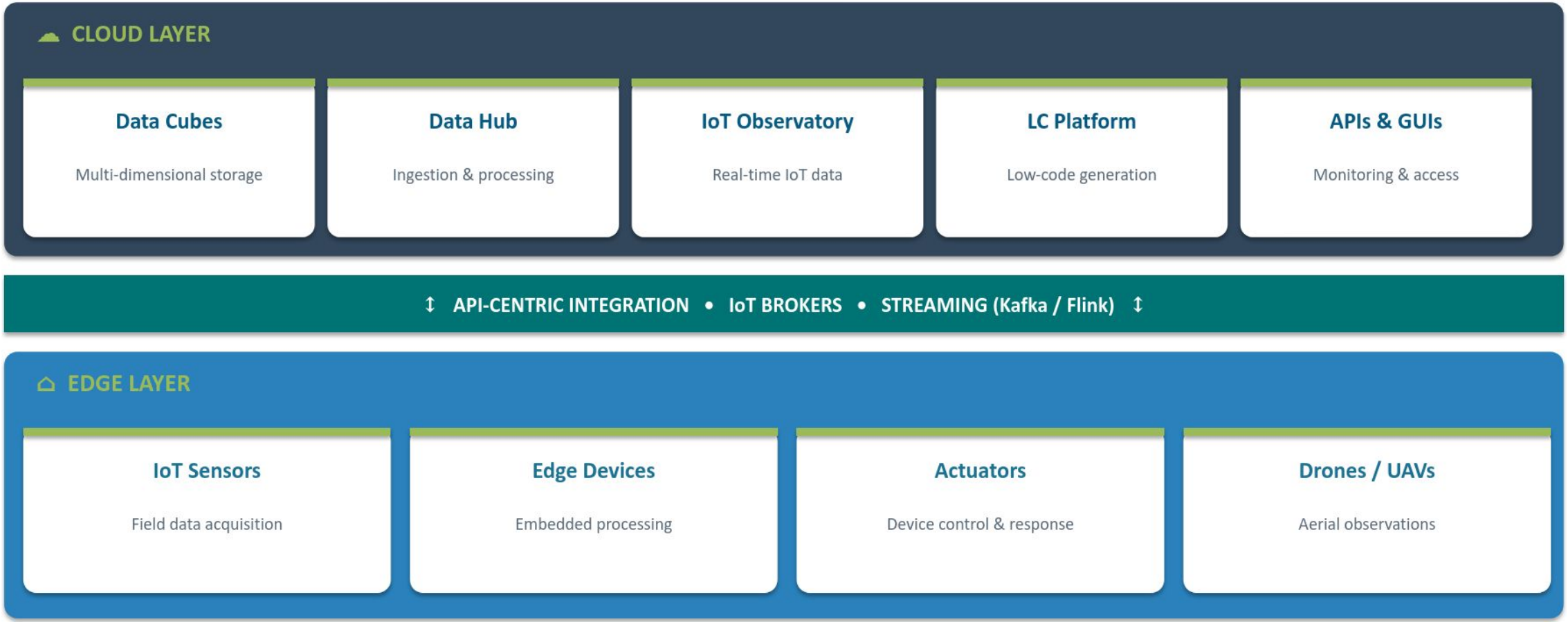
Application Generation Engine (AGE) & Low-Code Platform

AUTH

Hybrid Edge/Cloud/Mixed architecture

Presenter: Themistoklis Diamantopoulos / Konstantinos Panayiotou, AUTH

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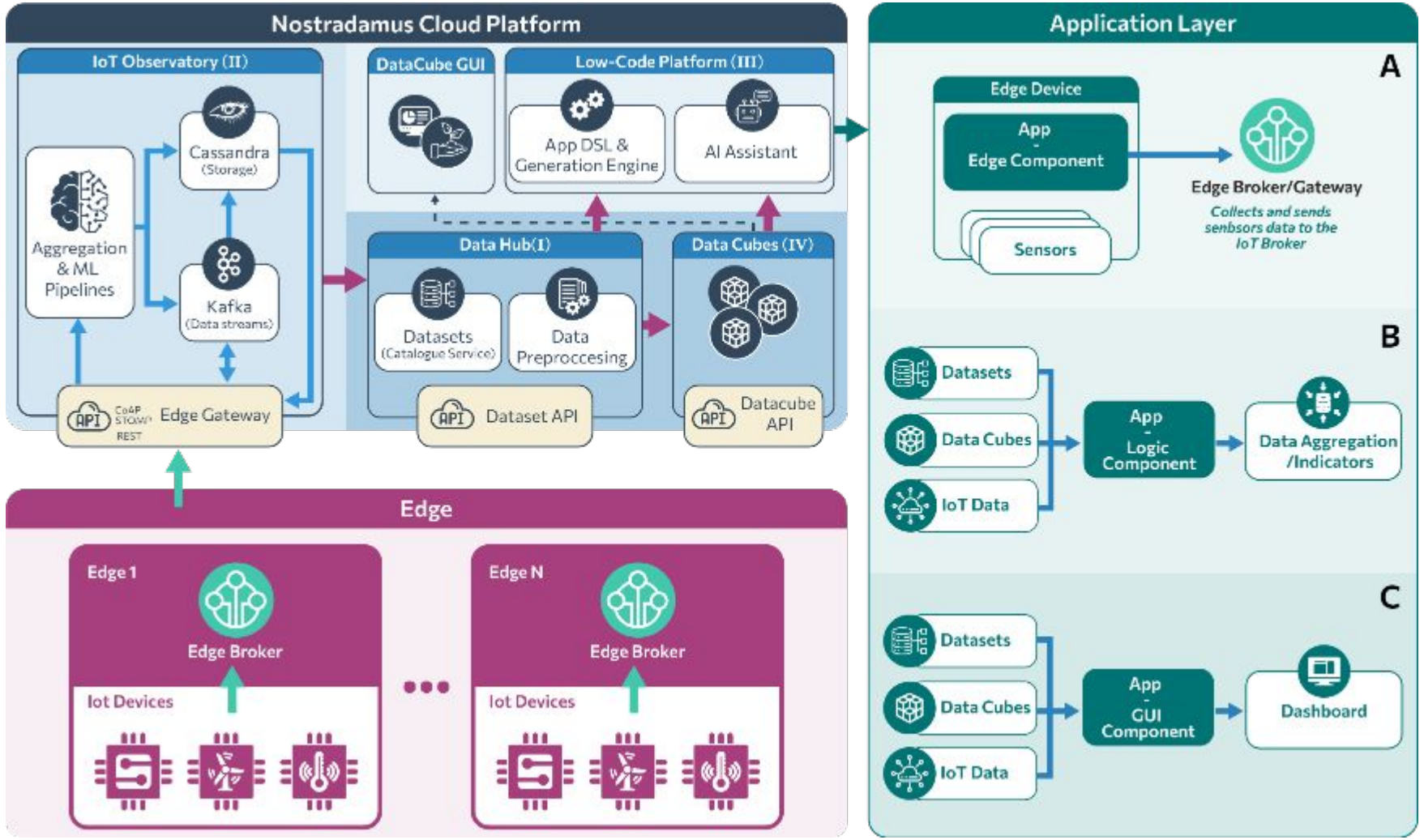


AUTH

Hybrid Edge/Cloud/Mixed architecture

Presenter: Themistoklis Diamantopoulos / Konstantinos Panayiotou, AUTH

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AUTH

Hybrid Edge/Cloud/Mixed architecture

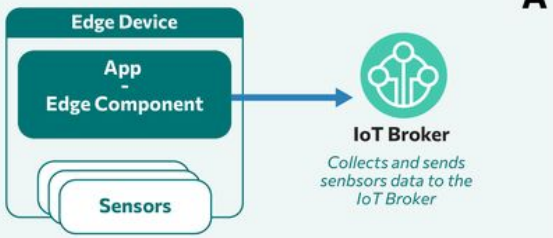
Three-Tier Application Model

A

Edge Components

Field-level sensory acquisition and local actuation

- Deployed on embedded devices (Raspberry Pi, ESP32)
- Sensor data acquisition
- Cloud dispatch via Edge Gateway
- Works with weak connectivity

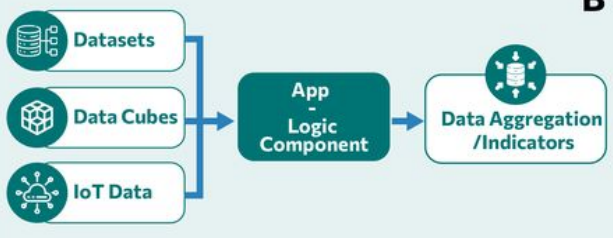


B

Logic Components

Cloud-based analytical engine for data fusion & indicators

- Ingests data from Edge, Data Cubes, and external data sources
- Signal/Stream processing & ML algorithms
- Generates food-security indicators
- Real-time stream pipelining

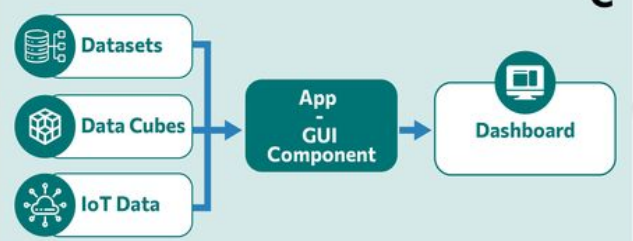


C

GUI Components

Interactive dashboards for visualization & decision support

- Multi-dimensional data visualization
- Customizable stakeholder dashboards
- Connects to IoTO, Data Cubes & External Data Sources
- Hybrid data interaction



UNIGE

Accessing Data Cubes & Earth Observation (EO) Pipelines

Presenter: Bruno Chatenoux, UNIGE

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Access

Country	Main url	Explorer	Jupyter
Cyprus	https://cyprus-dc.nostradamus-platform.eu/...	url	url
Germany	https://germany-dc.nostradamus-platform.eu/...	url	url
Slovenia	https://slovenia-dc.nostradamus-platform.eu/...	url	url
Serbia	https://serbia-dc.nostradamus-platform.eu/...	url	url
Switzerland	https://switzerland-dc.nostradamus-platform.eu/...	url	url

UNIGE

Accessing Data Cubes & Earth Observation (EO) Pipelines

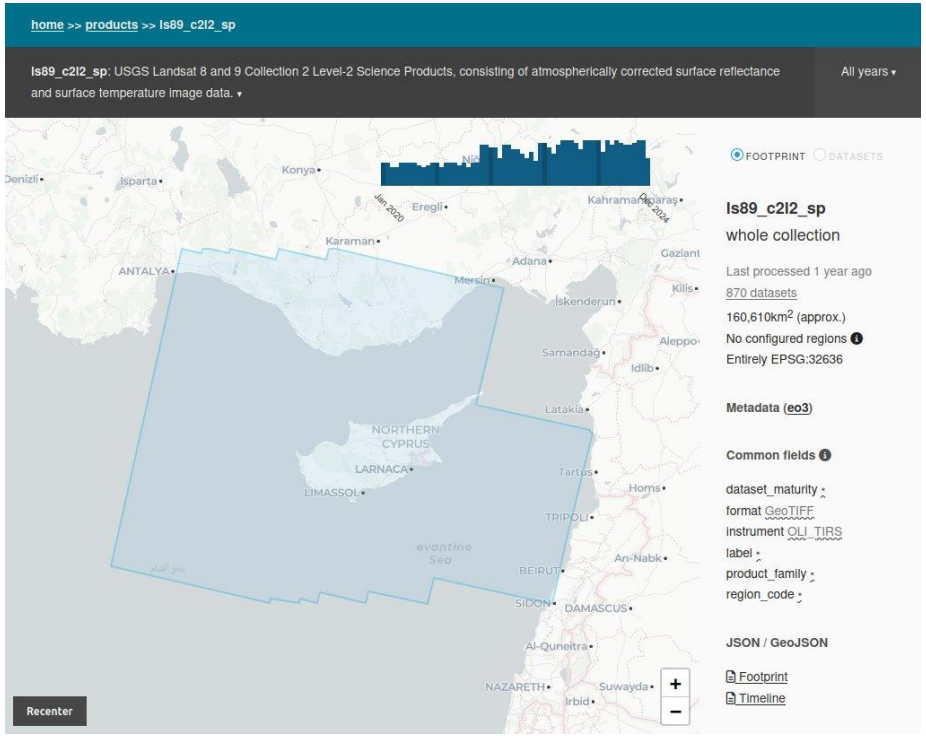
Presenter: Bruno Chatenoux, UNIGE

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Explorer

https://cyprus-dc.nostradamus-platform.eu/explorer/products

Allow any user to visualize geographic and temporal coverage of available products.



UNIGE

Accessing Data Cubes & Earth Observation (EO) Pipelines

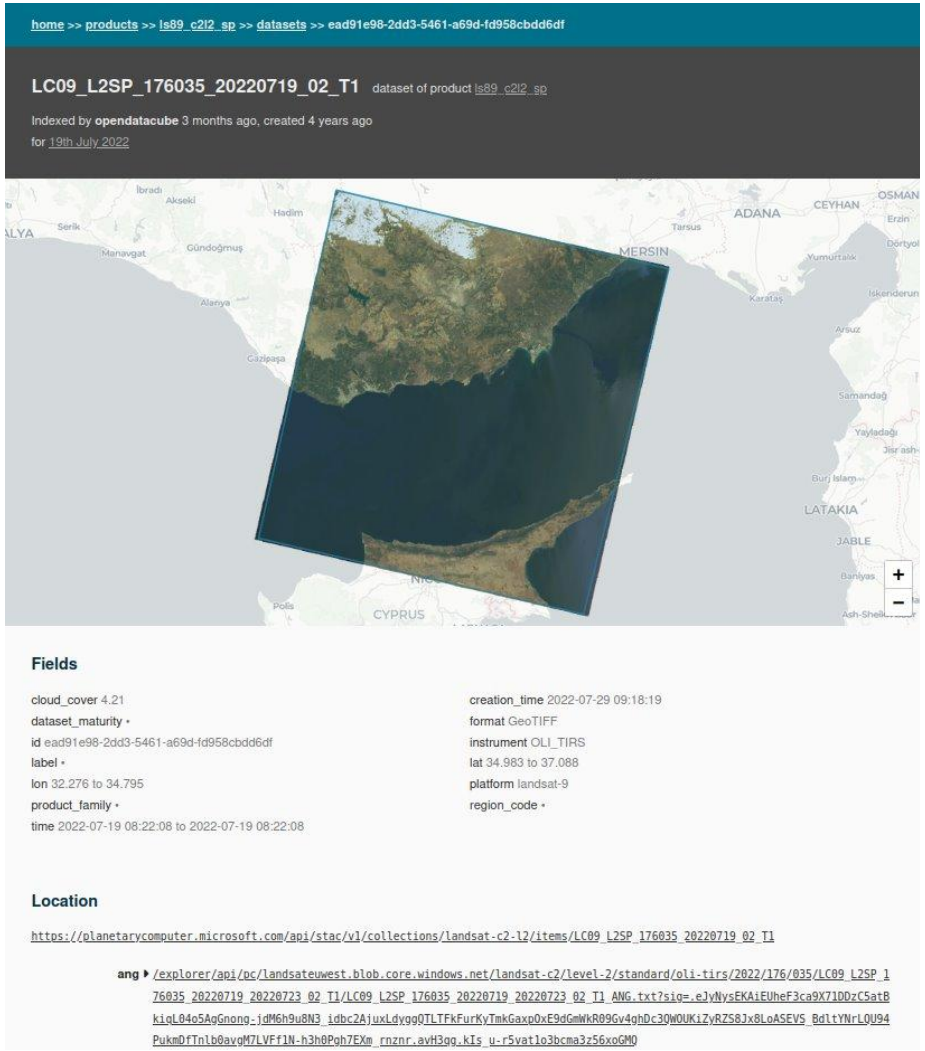
Presenter: Bruno Chatenoux, UNIGE

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Explorer

https://cyprus-dc.nostradamus-platform.eu/explorer/products

Scenes can be previewed and geotiffs downloaded.



UNIGE

Accessing Data Cubes & Earth Observation (EO) Pipelines

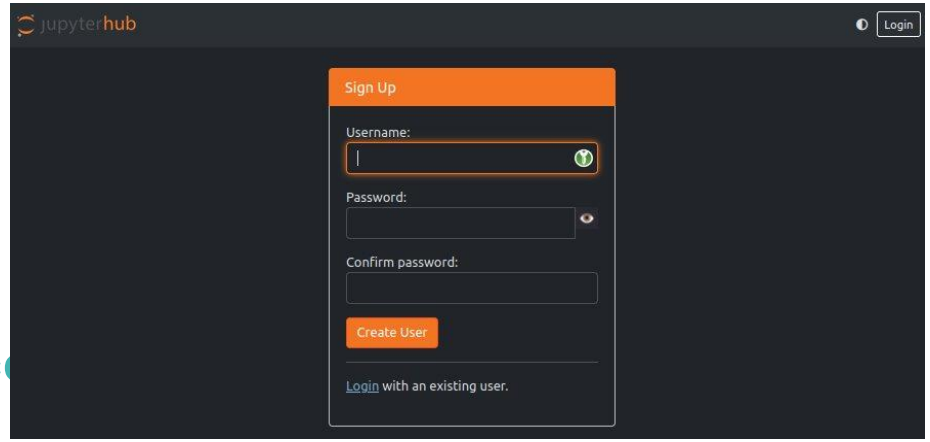
Presenter: Bruno Chatenoux, UNIGE

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Jupyterl
ab

https://cyprus-dc.nostradamus-platform.eu/jupyter

Allow registered user to access jupyterlab interfac



UNIGE

Accessing Data Cubes & Earth Observation (EO) Pipelines

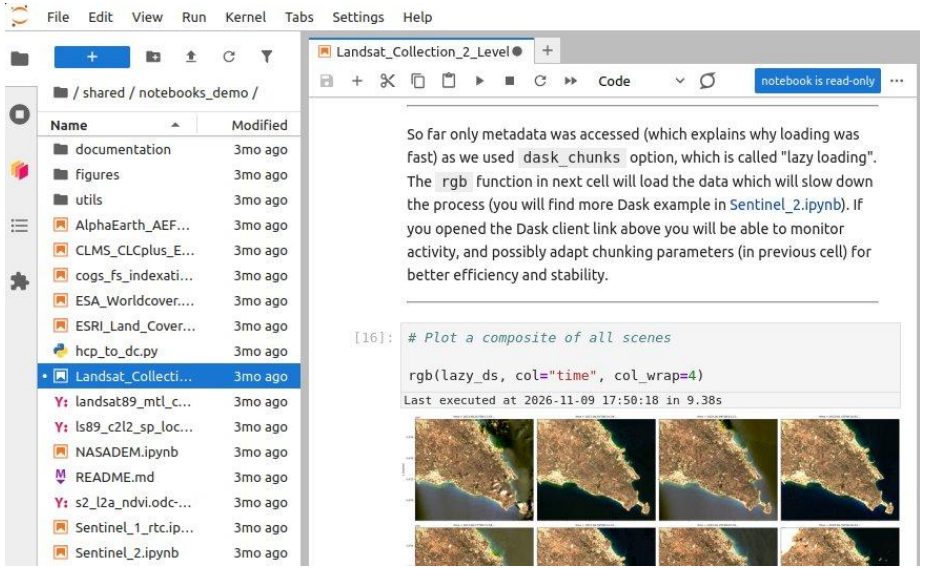
Presenter: Bruno Chatenoux, UNIGE

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Jupyterlab

https://cyprus-dc.nostradamus-platform.eu/jupyter

Containing demo notebooks and shared space.



UNIGE

Accessing Data Cubes & Earth Observation (EO) Pipelines

Presenter: Bruno Chatenoux, UNIGE

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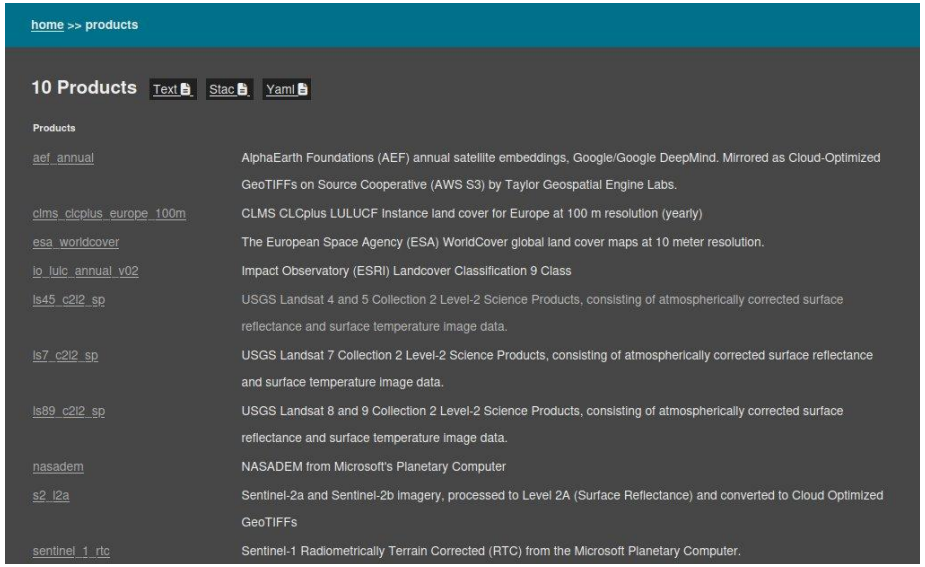
Customization - User input needed !

Data

- Time ranges
- Products

Processing

- Custom notebooks



TERRADUE

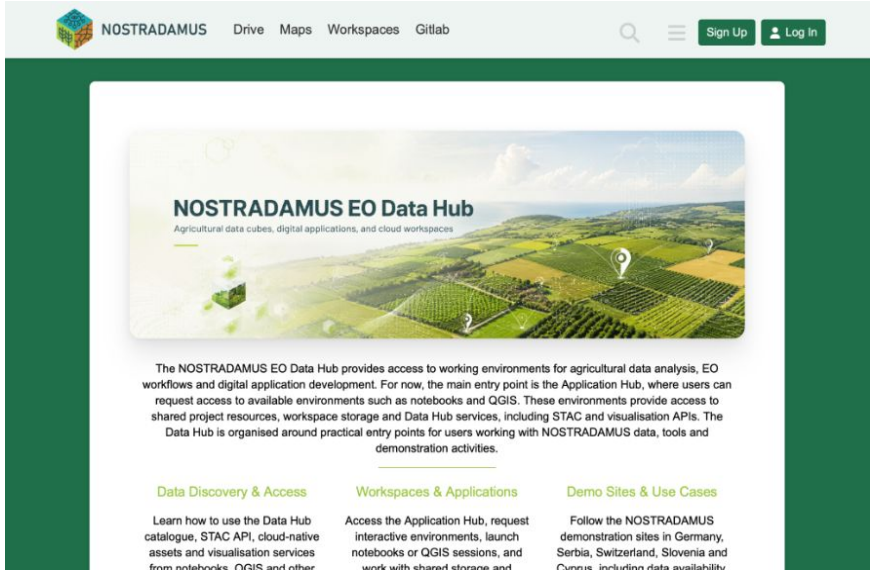
The EO Data Hub for application developers

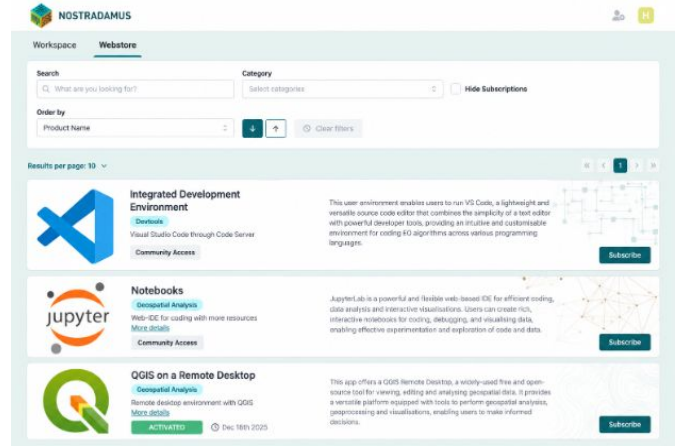
Presenter: Pedro Gonçalves, TERRADUE

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- Discover EO data and inspect available products
- Work with shared data in analysis workspaces
- Develop and version algorithms collaboratively
- Package selected workflows for repeatable processing

https://datahub.eratosthenes.org.cy

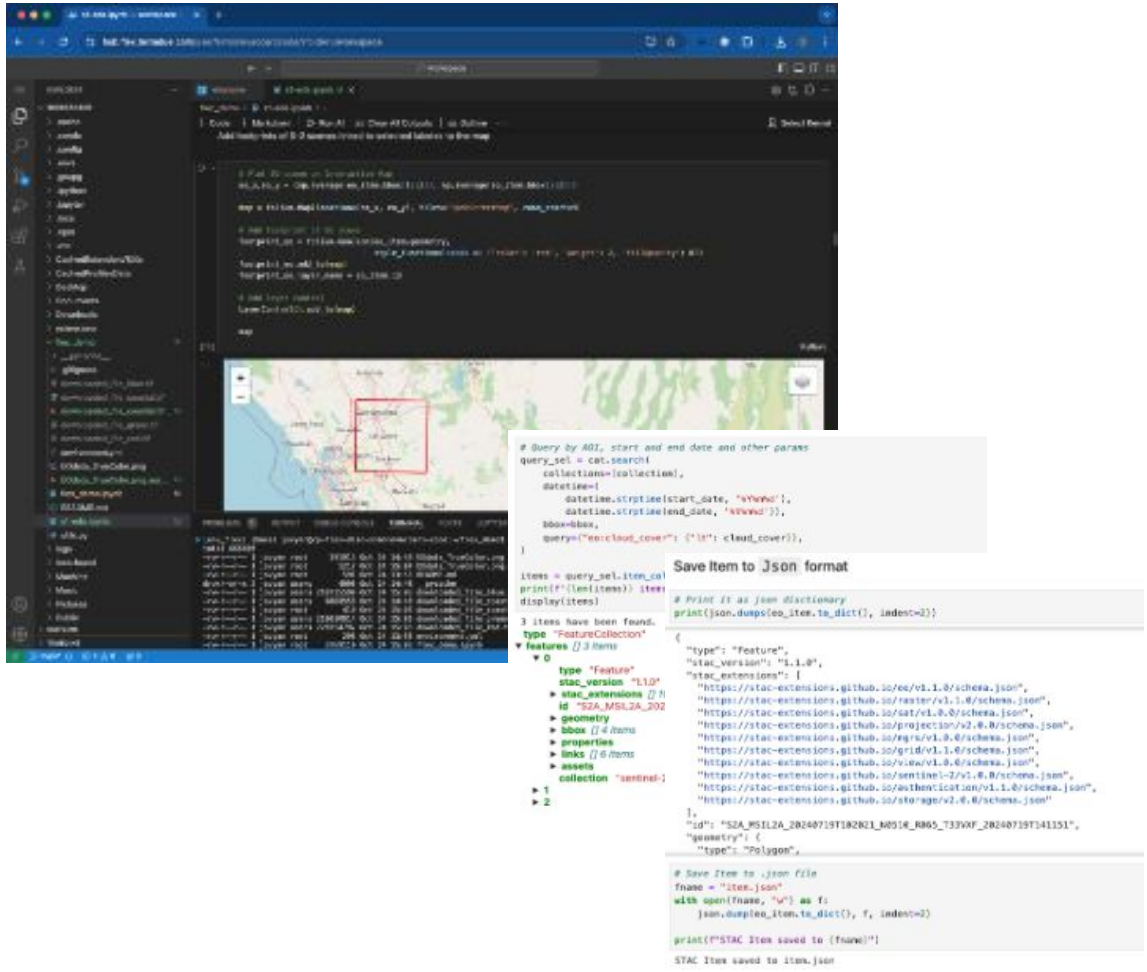




Developing EO workflows with Jupyter notebooks

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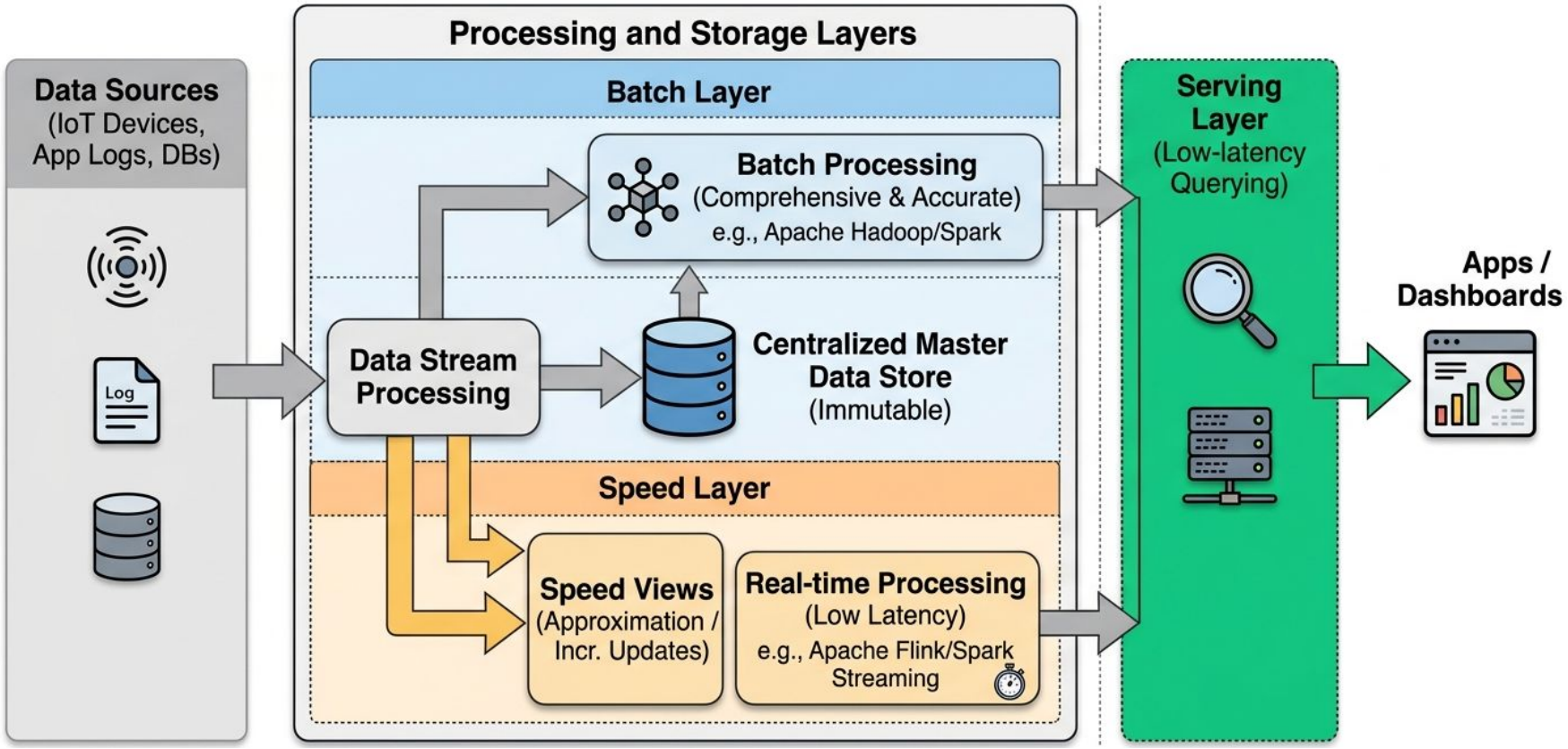
- Identify the EO products, areas and periods your solution needs
- Explore EO data and available Data Cube products
- Combine satellite data with authorised field observations
- Test your algorithms and visualise the results
- Share notebooks and code for reproducible analysis



AUTH

Connecting with the IoT Observatory

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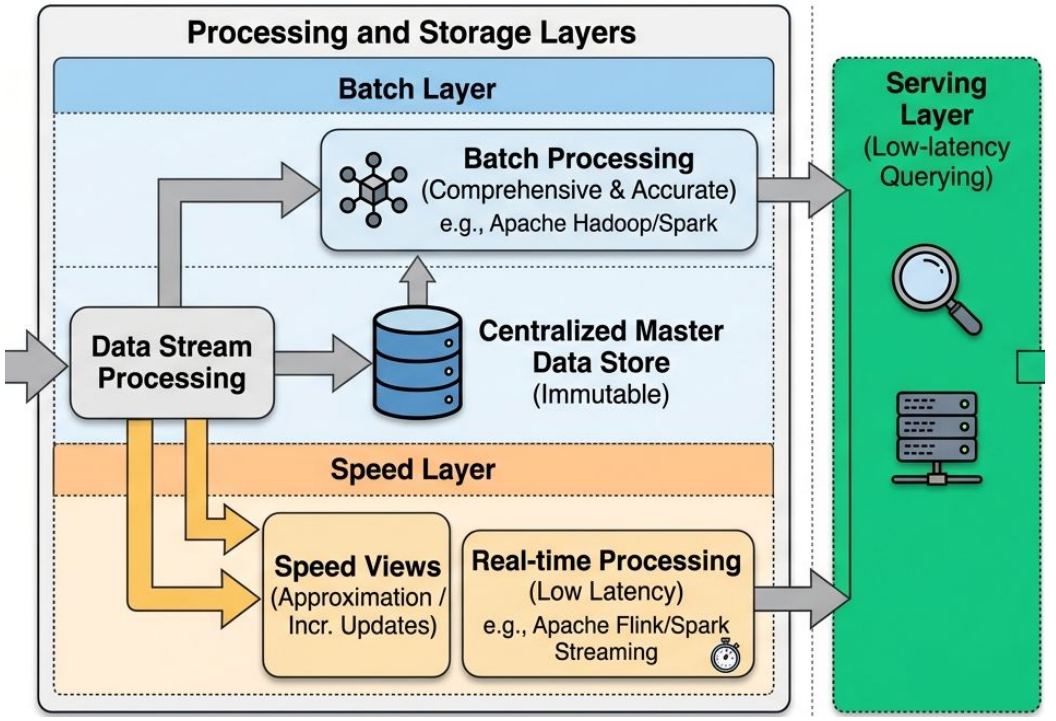


Connecting with the IoT Observatory

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Data Ingestion from Edge and IoT Layers

- REST API (Sync)
- Async Read/Write via MQTT
- Builds Real-time Data Streams
- Provides Data Persistence
- Historical data querying



Tip: Can also be used to store and query datasets!

AUTH

Connecting with the IoT Observatory

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Access Control & Management

Master Keys

- Full **administrative access** on project
- Highest level of control over a **Project** and its **Collections**
- Enable users to **create/delete Collections** within a project

Write Keys

- Used for **Data Ingestion** without administrative rights to the project

Read Keys

- Used only for **Data Retrieval** from the collections of a project
- Cannot modify or add data

AUTH

Connecting with the IoT Observatory

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Using the IoTO SDK...

```python
from nostradamus_ioto_sdk import NostradamusClient

client = NostradamusClient(api_key="your-api-key")
```

4. Create a Collection

```python
collection = client.collections.create(
    project_id=project.project_id,
    name="Temperature Readings",
    description="Hourly sensor readings",
    collection_schema={
        "sensor_id": "string",
        "temperature": "float",
        "humidity": "float",
    },
)
```

5. Send Data

```python
client.data.send(
    project_id=project.project_id,
    collection_id=collection.collection_id,
    data={
        "sensor_id": "ws-001",
        "temperature": 22.5,
        "humidity": 45.2,
        "timestamp": "2024-06-15T12:00:00Z",
    },
)
```

https://github.com/robotics-4-all/nostradamus-ioto-sdk

AUTH

Connecting with the IoT Observatory

NOSTRADAMUS

Using the IoTO SDK...

```python
from nostradamus_ioto_sdk import NostradamusClient

client = NostradamusClient(api_key="your-api-key")
```

6. Query Data

```python
response = client.data.get(
    project_id=project.project_id,
    collection_id=collection.collection_id,
    filters=[
        {"attribute": "sensor_id", "operator": "eq", "value": "ws-001"},
    ],
    limit=100,
)

for record in response.data:
    print(f"{record['timestamp']}: {record['temperature']}°C")
```

https://github.com/robotics-4-all/nostradamus-ioto-sdk

AUTH

Application Generation Engine (AGE) & Low-Code Platform

NOSTRADAMUS

- **Bootstrapping Software** to support OCs
- **Domain-specific Languages (DSLs)** for low-code application development
- Generation engine for **App Edge Components** (edge devices)
- Generation engine for **App Logic Components** (data aggregation)
- Generation engine for **App GUI Components** (visualization dashboards)
- **Automated generation** of Nostradamus applications (parts-of | complete)

from DSL models

AUTH

Application Generation Engine (AGE) - Bootstrapping Software

NOSTRADAMUS

IoTO SDK

High-level Python Library for interacting with Nostradamus IoT Observatory

DataHub SDK

High-level Python Library(ies) for interacting with Nostradamus DataHub

DataCube SDK

High-level Python Library(ies) for interacting with Nostradamus DataCubes

Data Processing Examples & Templates

Jupyter Notebooks for processing of EO data (IoTO, DataHub, DataCubes)

ML/AI prediction Examples & Templates

Jupyter Notebooks for using ML&AI algorithms for crop stress & yield estimation

EO Process Example & Templates

Jupyter Notebooks for using ML&AI algorithms for crop stress & yield estimation

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Application Generation Engine (AGE) - DSLs

NOSTRADAMUS

INPUT

DSL Models

- ▸ Hardware configurations
- ▸ Analytical logic definitions
- ▸ Visual layout specifications

PROCESSING

AGE Transformations

- ▸ Model-to-Model (M2M)
- ▸ Model-to-Text (M2T)
- ▸ Semantic rule validation
- ▸ Architectural compliance
- ▸ Security constraint checking

OUTPUT

3-Tier Application

- ▸ Edge firmware & connectivity
- ▸ Cloud logic & aggregation
- ▸ Interactive GUI dashboards
- ▸ API endpoints & bindings
- ▸ Deployment-ready artifacts

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Application Generation Engine (AGE) - DSLs



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Stream Processing / App Logic Component

Stream Join

```
PIPELINE enrich_orders
    SOURCE FROM local :: "orders/new"
    |> JOIN local :: "customers/profiles"
        ON msg.customer_id == other.id
        WITHIN 30 S
        TYPE: INNER
    ;
    |> MAP {
        order_id = msg.order_id;
        customer_name = other.name ?? "unknown";
        amount = msg.amount
    }
    |> SINK TO local :: "orders/enriched"
;
```

Window + Aggregate Pipeline

```
PIPELINE fleet_summary
    SOURCE FROM fleet :: "trucks/+/telemetry"
    |> FILTER msg.speed_kmh >= 5
    |> GROUP_BY msg.region
    |> WINDOW tumbling(5 M)
    |> AGGREGATE {
        avg_speed = avg(msg.speed_kmh),
        top_speed = max(msg.speed_kmh),
        active_trucks = count()
    }
    |> SINK TO fleet :: "analytics/fleet/regional"
;
```

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Application Generation Engine (AGE) - DSLs



Raspberry Pi sensors / App Edge Component

```
DEVICE RpiSoilMoistureGarden WITH description="RaspberryPi 5 with capacitive soil moisture probe on a digital threshold output", author="demol", os=raspbian;

USE RaspberryPi_5_8GB;
USE SoilMoisture[SoilProbe];

NETWORK[WiFi] WITH ssid="Wifi_2.4GHz", password="guest";

BROKER[MQTT] MyBroker WITH host="localhost", port=1883, auth.username="guest", auth.password="guest", ssl=False;

CONNECT SoilProbe WITH
    POWER
        GND -- GND_1,
        VCC -- power_3v3_a
    DATA
        gpio[mode="input"] DO -- GPIO4
    @ "my_raspi.sensors.humidity.soil";
```

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Application Generation Engine (AGE) - DSLs



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Raspberry Pi sensors / App Edge Component

```
DEVICE RpiDht22Climate WITH description="RaspberryPi 5 with DHT22 temperature and humidity sensor over a single GPIO data line", author="demol", os=raspbian;

USE RaspberryPi_5_8GB;
USE DHT22[ClimateProbe];

NETWORK[WiFi] WITH ssid="Wifi_2.4GHz", password="guest";

BROKER[MQTT] MyBroker WITH host="localhost", port=1883, auth.username="guest", auth.password="guest", ssl=False;

CONNECT ClimateProbe WITH
    POWER
        GND -- GND_1,
        VCC -- power_3v3_a
    DATA
        gpio[mode="input"] data -- GPIO4
    @ "my_raspi.sensors.env.dht22";
```

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Demo Sites Overview

Demo Site Leads
(DLG, BIOS, Agroscope/WBF, ITC, ECoE)



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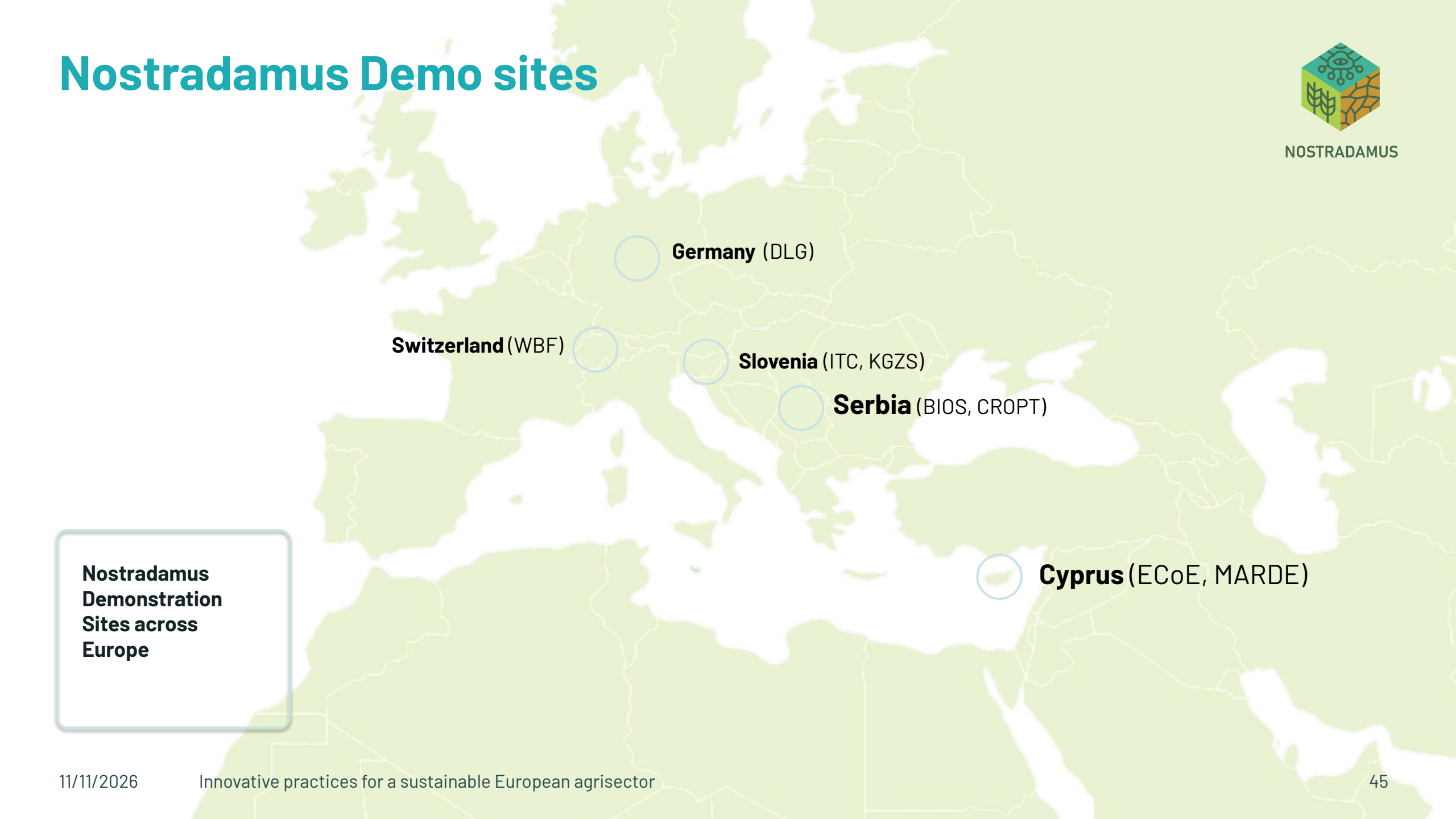
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Nostradamus Demo sites

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Nostradamus Demonstration Sites across Europe

Germany demo site

Stephanie Timm, DLG

NOSTRADAMUS

International Crop Production Center (IPZ)

Bernburg-Strenzfeld, Saxony-Anhalt

International DLG Crop Production Center

Nostradamus pilot for Germany

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563 ha
Agricultural area

13 ha
Experimental plots

10 year
Crop rotation

80 m
Above sea level

511 mm
Average rainfall

10.1 °C
Average temperature



The location is characterised by the rain shadow of the Harz Mountains.
Problems with early summer drougth and unfavourable distribution of rainfall.
There are years with only 330 mm of rainfall,
while others with rainfall significantly above average.

The predominant soil type is loess-black earth
with a field capacity of 250 mm and a soil rating of 65–94.

Crops and ongoing projects

International DLG Crop Production Center

NOSTRADAMUS

Crops in rotation

- Wheat
- Durum wheat
- Spelt
- Barley
- Rapeseed
- Sugar beet
- Marker pea propagation
- Grain maize
- Biodiversity areas

Current projects

- IWANA - Integration of value-adding arable wild herbs into intensive cash crop farming
- TRANSFORM - Digital transformation of agriculture in the Central Germany region
- MuD NIRS - Pilot and demonstration initiative employing NIRS sensors to measure nutrient content in liquid manure
- Network of Arable Demonstration Farms – Project within the framework of the BMEL Arable Farming Strategy 2035
- TEAM#UP - Coordinated knowledge efforts for ecosystem restoration

Further information: Current projects - Internationales DLG-Pflanzenbauzentrum

Technology and data

International DLG Crop Production Center

NOSTRADAMUS

Field sensors

Pessl iMetos weather station
Sentek ‘drop and drill’ probes, at a depth of 90 cm

Irrigation

Subsurface drip irrigation system
Currently in use with

- wheat,
- grain maize,
- spring barley
- and field beans



Data

- Weather and climate (e.g. air and soil temperature, wind)
- Field data (e.g. crop type, crop phenology, yield)
- Lab data (e.g. soil analysis, pH)

Switzerland demo site

Florian Bachmann, Swiss Future Farm

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Swiss Future Farm

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Nostradamus demo site Switzerland · Agroscope

OC#1 Webinar #2 · 12 November 2026

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Swiss Future Farm at a glance

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Agricultural technology R&D platform in Tänikon (TG).
Nostradamus pilot for Switzerland

81 ha
agricultural area

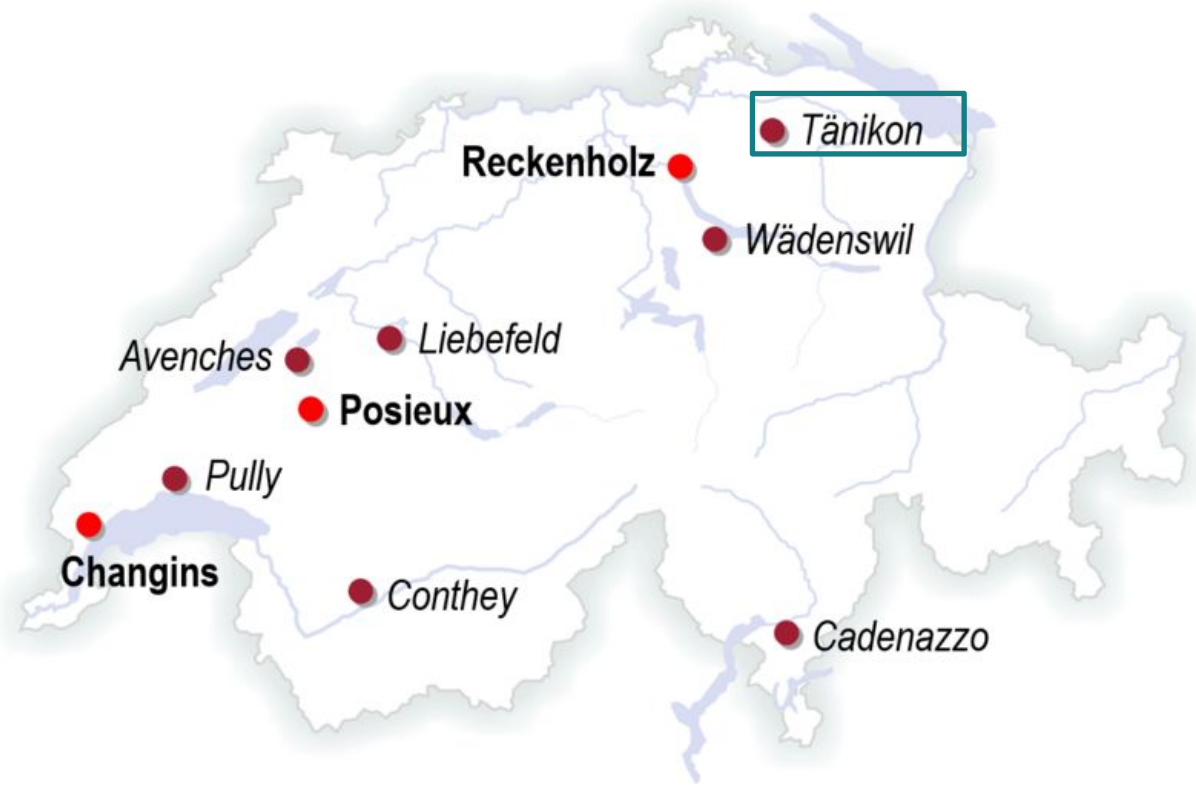
55 ha
arable land

20 ha
grassland

6 ha
biodiversity area

534 m
above sea level

65 | 55
dairy cows | sows



Partners: AGCO (Fendt, Massey Ferguson, Valtra) · GVS Agrar AG · Arenenberg education & advisory centre · research partner Agroscope

Crops and ongoing field trials

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Crops in rotation

- Winter wheat
- Barley
- Sugar beet
- Canola
- Silage maize
- Soya
- Sunflowers
- Grassland

Field trials (selection)

1. Weed control measures in silage maize
2. Variable-rate planting in maize based on organic matter and soil moisture
3. Cover-crop banding with high-accuracy guidance for no-till maize
4. Reduced tillage for silage maize and sugar beet
5. Planting depth, down force and liquid starter fertilizer in sugar beet
6. Crop protection methods in canola
7. Deep fertilizer placement in canola

Technology and data on site

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M

Machinery

Fendt, MF and Valtra tractors with auto-guidance

Section control and variable-rate application

Combine with yield mapping

Camera-guided mechanical weeding

S

Field sensors

Pessl METOS weather station

Precision Planting planter with on-the-go soil sensing

D

Drones

DJI drones with MicaSense Altum multispectral and thermal sensor

Field inspection and crop monitoring flights

F

Farm data (FMIS)

FendtONE machinery data

NEXT Farming and 365FarmNet: documentation, planning, precision-farming evaluation

Field trial records: soil analyses, agronomic and meteo data

Full list: swissfuturefarm.ch/3040.html

What the SFF offers OC#1 projects

NOSTRADAMUS

Real-farm test fields

Pilot and validate your application on 55 ha of arable land under real farm conditions

Data access

Machinery, sensor, drone and trial data from the site for development and validation

Agroscope expertise

Site-specific fertilisation, drone-based weed detection, controlled traffic farming

Demonstration

Show your solution at Nostradamus demo events and field days in Tänikon

Visitors and farmers

Public visitor programme, about 1,000 visitors in 2021, incl. students

Multi-actor network

AGCO, Arenenberg, Agrar AG and the Innovation Forum Food Industry

Slovenia demo site

Leon Abraham, ITC

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Slovenia demonstration site

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About the site

- Located in Pomurje, north-eastern Slovenia
- Responsible partners: ITC & KGZS
- Important agricultural region with fragmented farm structure
- Main crops: wheat, barley, maize, oat and spelt



Demonstration focus

- Real agricultural environment supporting data-driven solutions
- Access to relevant agricultural and environmental data
- Combination of field observations, sensor measurements and existing datasets
- Strong connection between agronomic knowledge, data and digital technologies

Data available at the Slovenian Demonstration Site

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Field & farm data

- Field boundaries / GERK
- Crop and expeceted yield
- Field operations
- Fertiliser use

FieldBook

- Farm records
- Structured field data
- Data exchange

Laboratory data

- Soil analyses
- pH
- P2O5 / K2O
- Organic matter and other soil parameters



Weather and IoT

- More than 20 weather stations and IoT devices
- Temperature & humidity
- Soil moisture & soil temperature
- Air pressure & leaf wetness

EO & Drone data

- Satellite imagery
- Drone observations
- Spatial crop variability
- Used in stage 2 integration

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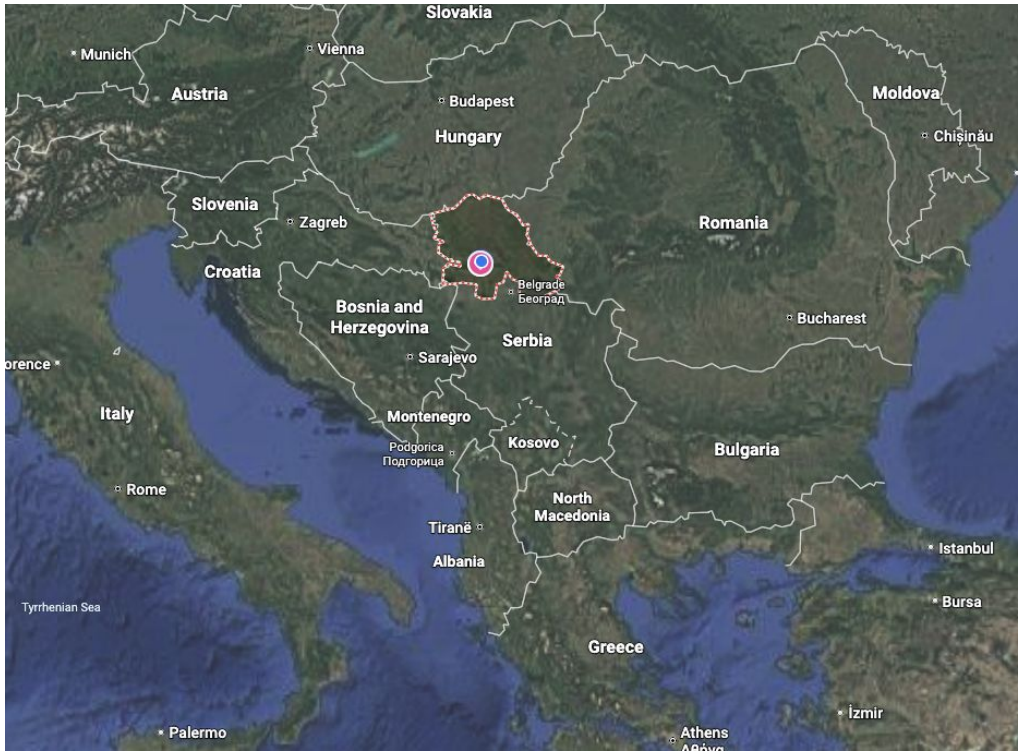
Vojvodina Demo Site

Serbia, Southeast Europe

Vojvodina, Serbia

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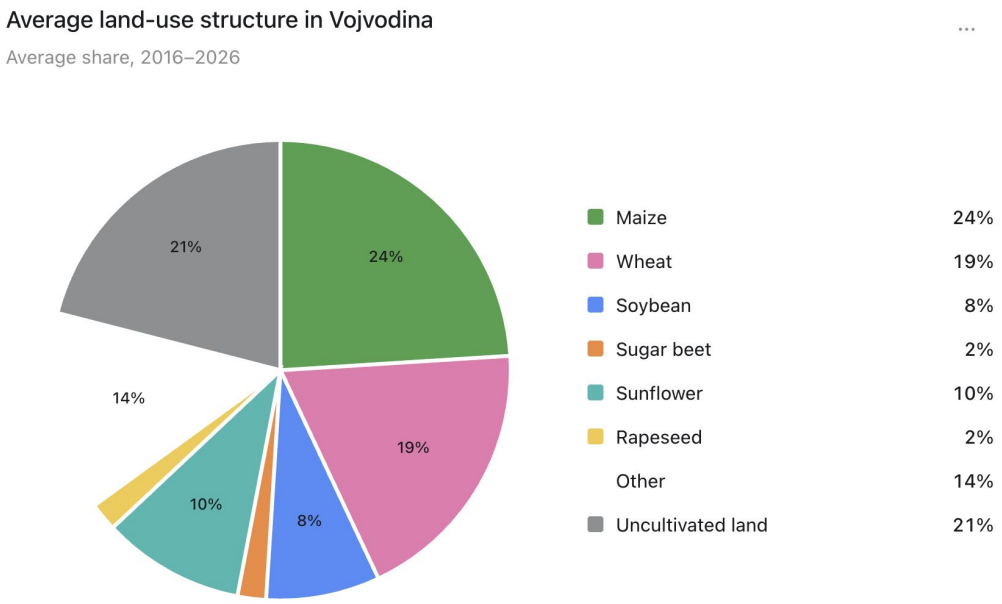
- Serbia's northern province
- Pannonian Plain
- The breadbasket of the region
- Dense canal network (22,000 km)

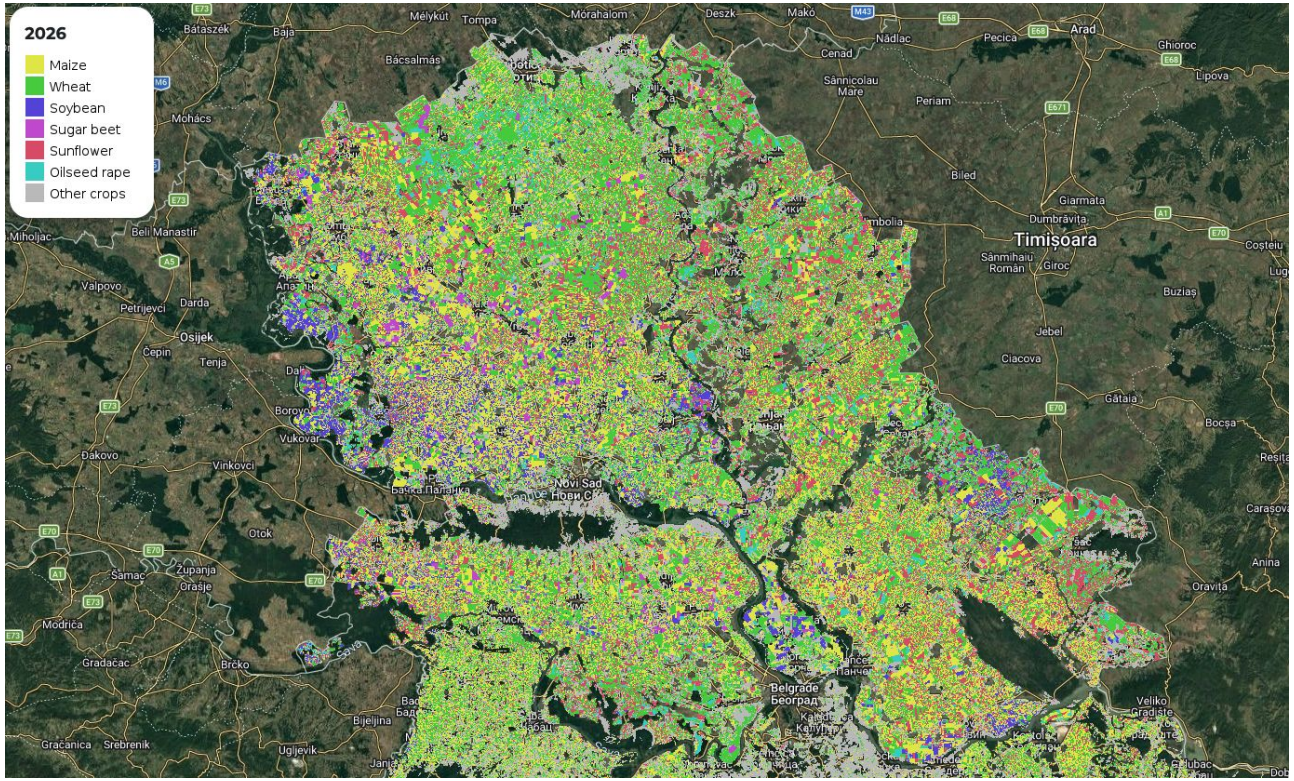


Vojvodina, Serbia

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- Mainly arable crops
- Some orchards, vineyards and vegetable production

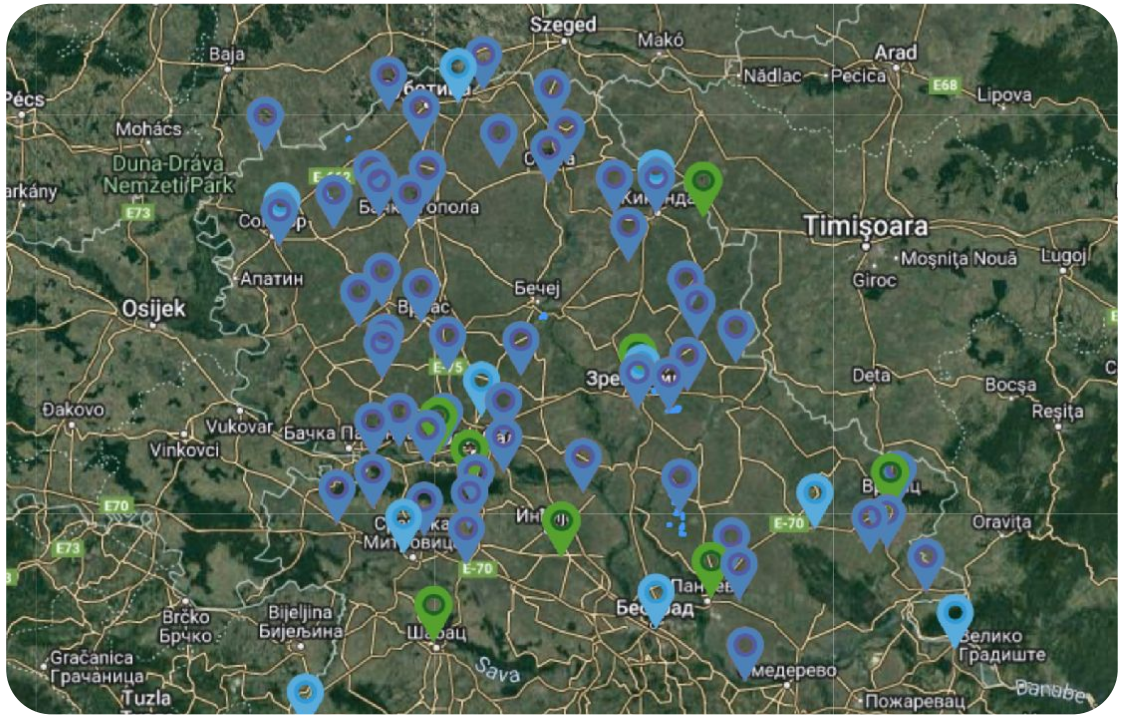




Vojvodina

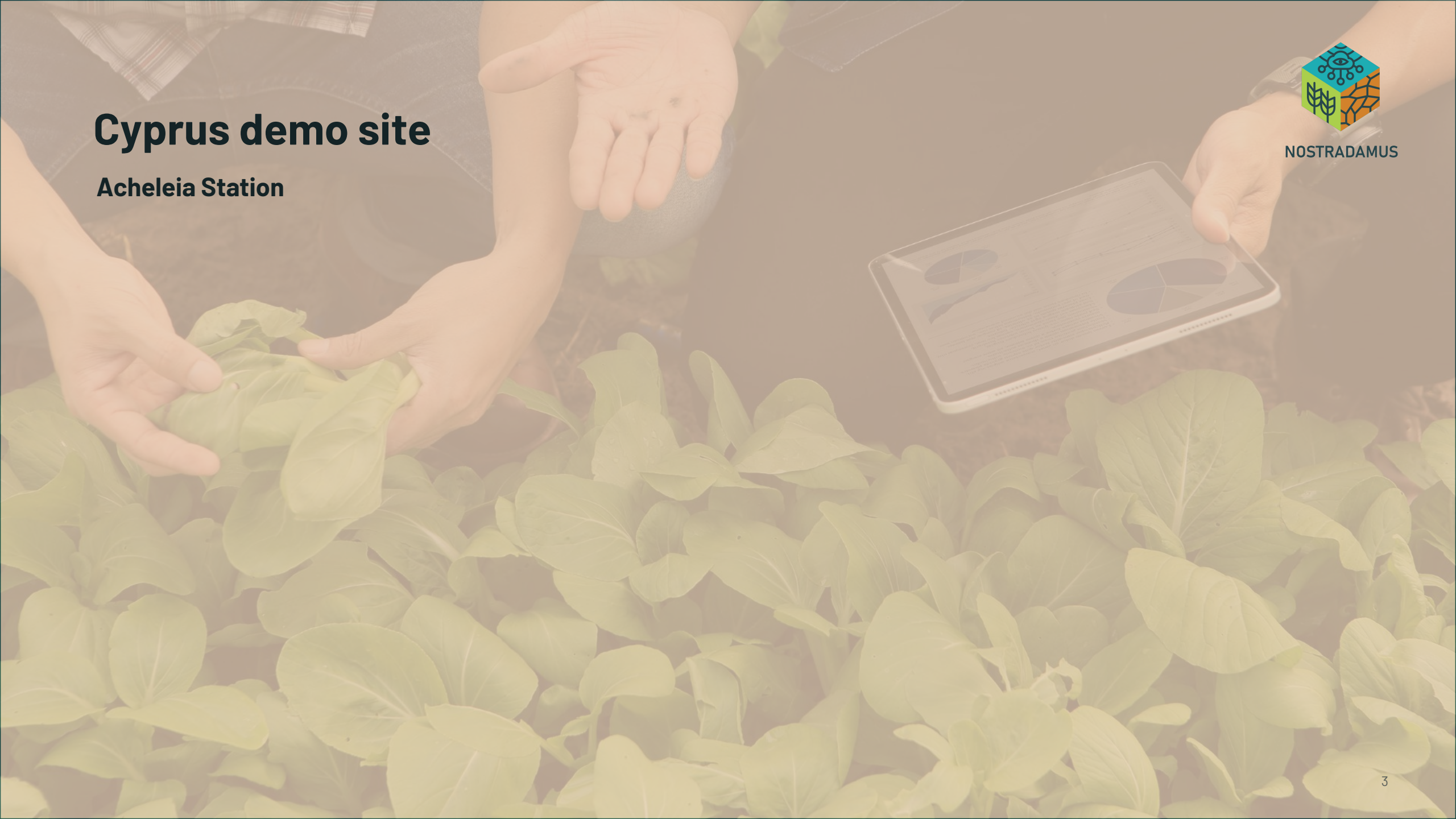
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- Black soils
- 550–600 mm of precipitation annually, mainly in May and June
- Drought becoming an increasing problem
- Infrastructure: LORA Weather stations



Cyprus demo site

Acheleia Station



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Cyprus Demo Site

NOSTRADAMUS

Location & Operations

Site: ARI Acheleia Station, 7 km SE of Paphos

Partners: MARDE hosting, ECoE technical support

Scale: 51 ha total; 7 ha cereals at Morokampos

Agro-Climatic Profile

Climate: 420 mm annual rain; recurring drought risk

Soil: Alkaline clay loam (pH 7–8.5), minimal irrigation

Agronomy: Cereals seeded at 25 kg/ha

IoT & Field Validation

Weather: METER ATMOS 41 (12 variables, 15-min)

Soil Sensors: METER TEROS 12 at 10, 30, 50 cm

Field Scouts: Weekly biotic/abiotic stress checks

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Demo Sites Affiliation, Field Testing, Other Mandatory Outputs

F6S, Open Call Manager



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Dual-Region Transferability

Selection of Primary Demo Site & Secondary Demo-site

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Primary Demo Site (Physical)

Select one country matching your topic pair.

Available: Germany, Serbia, Switzerland, Slovenia, Cyprus.

On-site sensor integration and live demonstration event.

Secondary Context (Digital)

Automatic paired regional context for transferability.

No hardware or physical travel required.

Desktop validation via Data Cubes and remote sensing.

Country	NOSTRADAMUS Partners responsible/involved
Germany	DLG
Serbia	BIOS, CROPT
Switzerland	WBF, Agroscope
Slovenia	ITC, KGZS - ZAVOD MS
Cyprus	EcoE, MARDE

Selecting Primary Demo Site (DE, RS, CH, SI, CY)

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1 Select Topic

Selected one of the 5 predefined topics

	TOPIC NAME (thematic domain)
T1	Sustainable crop production and optimisation of cereal-based systems under changing climate and soil conditions.
T2	Nutrient and soil health management, integrating soil fertility indicators, organic matter dynamics, and precision fertilisation models
T3	Water resource efficiency and drought resilience, using the Early Warning System outputs and IoT-based soil moisture monitoring.
T4	Smart and predictive pest and disease management to support the EU objective of reducing pesticide dependency and enhancing sustainability.
T5	Open topic: Integrated, cross-domain decision-support applications combining multiple topics (an open proposal from the applicants for an application that combines at least 2 of the previous topics T1-T4)

2 Select Primary Demo Side

Select one country of the pair matching your topic.

		TOPIC NAME (thematic domain)	**Demonstration Site Options (Select ONE Primary Site)**
☐	T1	Sustainable crop production and optimisation of cereal-based systems under changing climate and soil conditions.	☐ Serbia ☐ Slovenia
☐	T2	Nutrient and soil health management, integrating soil fertility indicators, organic matter dynamics, and precision fertilisation models	☐ Slovenia ☐ Serbia
☐	T3	Water resource efficiency and drought resilience, using the Early Warning System outputs and IoT-based soil moisture monitoring.	☐ Germany ☐ Switzerland
☐	T4	Smart and predictive pest and disease management to support the EU objective of reducing pesticide dependency and enhancing sustainability.	☐ Cyprus ☐ Germany
☐	T5	Open topic: Integrated, cross-domain decision-support applications combining multiple topics: 1. ..... 2. ..... State clearly which (at least 2 of the topics listed above T1-T4) will be addressed by your proposed solution	Select ONE Primary Country from those available for your combined topics: ☐ Serbia ☐ Switzerland ☐ Slovenia ☐ Cyprus ☐ Germany

NOSTRADAMUS TOPICS REFERENCE TO THE DEVELOPED MODULES

T1	**Sustainable crop production and optimisation of cereal-based systems under changing climate and soil conditions.**	**Module 2 Crop Suitability**
T2	Nutrient and soil health management, integrating soil fertility indicators, organic matter dynamics, and precision fertilisation models	Module 3 Soil and Nutrition
T3	Water resource efficiency and drought resilience, using the Early Warning System outputs and IoT-based soil moisture monitoring.	Module 1 Drought Monitoring
T4	Smart and predictive pest and disease management to support the EU objective of reducing pesticide dependency and enhancing sustainability.	Module 4 Pest Management
T5	Open topic: Integrated, cross-domain decision-support applications combining multiple topics (an open proposal from the applicants for an application that combines at least 2 of the previous topics T1-T4)	Any 2 of the above listed Modules corresponding to the chosen topics

Consortium Facilitation

NOSTRADAMUS

For successful sub-grantees, the NOSTRADAMUS consortium partners from the respective countries will facilitate direct introductions to the regional **Multi-Actor Platforms (MAPs)** and local farming networks during Sprint 1 (Training & Onboarding) and Sprint 2 (Design).

However, please note that for **Serbia, Slovenia, Switzerland and Cyprus the local partners do not operate designated pilot farms** and do not guarantee Third Parties physical access to privately owned farms or agricultural parcels.

Respectively (if chosen as primary demonstration site):

- **For Slovenia**: ITC/KGZS will facilitate contact with suitable local farmers and stakeholders and support arrangements for potential field validation where required by the selected solution. Any access to privately owned farms, fields or facilities will be subject to the prior agreement of the respective owner/operator and to the feasibility and specific requirements of the proposed validation activities.

- **For Serbia**: as long as BioSense and CROPT do not operate designated pilot farms in Serbia, they provide relevant data from the region. The NOSTRADAMUS Serbian demonstration site is designed to cover representative agricultural landscapes across Vojvodina region managed by commercial enterprises and individual farmers.

- **In Switzerland**: maize is the only cereal crop that is irrigated. The **Swiss Demonstration Site** does not have any irrigated plots of its own. For field validation of irrigation solutions developed under Topic 3 a suitable local farm must therefore be found. The Swiss pilot can assist applicants with this search.

Please note that in these cases the applicant must arrange access to a suitable farm and ensure that the NOSTRADAMUS consortium has the necessary access to the farm and relevant data for credible validation, KPI assessment and verification of the project results.

Following selection, if the project is contracted and granted funding, **the selected Third Parites will coordinate with** BioSense/CROPT (for Serbia) or ITC/KGZS (for Slovenia) or Agroscope (for Swizerland) or ECoE/MARDE (for Cyprus) during Sprint 1 onboarding to align their field trials, integrate local data feeds, and ensure necessary verification access for KPI evaluation.

Mandatory TRL 4 to TRL 7 Progression

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PROPOSAL ENTRY (MONTH 0)

Minimum TRL 4

Lab Validation: Proven via past tests, prototype code, or models.

Proposal Evidence: Described in Section 2.4 of Annex 2.

Streamlined Submission: No extra file uploads required in form.

12 Months

4 Sprints

PROJECT TARGET (MONTH 12)

Minimum TRL 7

Operational Demo: System prototype validated in real field environment.

Sprint 4 Verification: Evidenced by achieved milestones and KPIs.

Final Reporting: Confirmed via submission of required deliverables.

Mandatory open-source code release & EIP-AGRI Practice Abstracts

Mandatory Sub-Project Deliverables (not exhaustive)

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Open-Source Code Release

Public Repository: Publish developed code on GitHub or GitLab.

Permissive License: Apply approved OSI open-source licensing.

Full Documentation: Include README, setup guide, and dependencies.

EIP-AGRI Practice Abstracts

Standard Template: Submit using official EU CAP Network format.

Practitioner Focus: Summarize actionable field results in plain language.

Final Delivery: Required milestone prior to final grant payment.

!!! Sub-project deliverables funded by NOSTRADAMUS must be strictly developed and released **as open-source, open-data, and open-hardware assets.**

IP, Data Reproducibility & Commercialization

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Background vs. Funded IP

Background IP: Pre-existing models and weights remain proprietary.

Funded Outputs: Grant-funded code and pipelines require OSI release.

Confidential Farm Data

Proposal Scope: Declare restricted datasets and validation test data.

Onboarding Setup: Agree NOSTRADAMUS storage access during onboarding.

Licensing & Commercial Use

Clean Repositories: Use MIT or Apache 2.0; exclude secrets and PII.

Commercial Freedom: Unrestricted paid APIs or subscriptions post-project.

- **Distinguishing Background IP vs. Funded Model Code & Weights**

Grant funding cannot be used to fund the development or training of a model that remains strictly proprietary.

  - Pre-existing Background IP: Any pre-existing models, code, or weights held prior to the sub-grant remain proprietary.
  - Foreground / Funded Outputs: All software code, model architectures, training workflows, pipelines, and scripts developed or improved using NOSTRADAMUS grant funds must be released under an OSI-approved open-source license (e.g., MIT, Apache 2.0) in a public repository.

- **Confidential Commercial Farm Data & Reproducibility**

Confidential farm data should be identified in the proposal, together with the applicable access restrictions and permissions. Applicants should explain how authorised validation and reproducibility will be supported, using anonymised or representative test data where appropriate. Any storage or access arrangements required from NOSTRADAMUS must be agreed during onboarding.

- **Licensing, Post-Project Availability, and Commercial Services**
  - Licensing: All newly developed code must use an OSI-approved open-source license (e.g., MIT, Apache 2.0). Public repositories must exclude credentials, security tokens, or personal data.
  - Post-Project Commercialization & API Pricing: Third parties retain the rights to exploit their solutions commercially after project completion, including offering paid API services or commercial subscriptions. The call rules do not restrict post-project commercial pricing models, provided the open-source software delivered during the grant period remains accessible as contracted.

On-site trials, Multi-Actor Platforms (MAPs) co-creation, and user training

NOSTRADAMUS

On-Site Field Trials & Demo Sites

Validate solutions on real NOSTRADAMUS cereal demonstration sites during Sprint 4 (Months 11–12).

Multi-Actor Platforms (MAPs) Co-Creation

Co-design and test tools with farmers, advisors, and AKIS across 5 regional MAPs (DE, CY, SI, RS, CH).

End-User Training & Adoption

Deliver hands-on farmer training and practical materials during Sprint 4 to ensure operational readiness.

Ready to apply?

Prepare your application and consult the official Open Call documentation

NOSTRADAMUS

ALL APPLICATION DOCUMENTS ARE AVAILABLE AT

https://nostradamus-project.eu/open-call-1/

Open Call period: 29 September – 2 December 2026, 17:00 CET

F6S discussion board: https://www.f6s.com/nostradamus-open-call-1/discuss

Open Call Email: opencall@nostradamus-project.eu

End of Presentation

Thank you



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Questions and Answers



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